Title of the Invention D-1493

RECEPTACLE

Background of the Invention and Related Art Statement

[0001] The present invention relates to a receptacle or holder such as a glove compartment including a flexible sliding lid for opening and closing the receptacle.

[0002] A receptacle is provided in a center console of an automobile. A lid for closing the receptacle includes, for example, a sliding lid having projections disposed in parallel on a backside of a soft and thin sheet material. The sliding lid slides in a pair of guide rails disposed at both right and left sides of the receptacle (refer to Japanese Patent Publication (Kokai) No. 2002-087167).

[0003] The sliding lid disclosed in the reference bends freely at a thin portion between adjacent projections. When the sliding lid is opened, the sliding lid is housed like a shutter door in a housing portion continuously formed at an end of an opening. When the sliding lid is closed, the sliding lid extends along the guide rails to close the opening, and the projections provide rigidity to support a weight applied on a top of the sliding lid.

[0004] In the conventional sliding lid, when the lid is closed, a front end in the traveling direction of the sliding lid made of a flexible material is pulled. When the lid is opened, a rear end in the traveling direction of the sliding lid is pushed and the sliding lid slides in the housing portion by its own weight. Accordingly, especially when the lid is opened, the front end of the sliding lid tends to be caught in the guide rails, and it is difficult to smoothly open the sliding lid.

[0005] In view of the problem described above, the present invention has been made, and an object of the present invention is to provide a receptacle such as a glove compartment in which a lid can be opened smoothly.

[0006] Further objects and advantages of the invention will be apparent from the following description of the invention.

Summary of Invention

[0007] In order to achieve the objects described above, according to the present invention, a receptacle includes a box member having an opening; a guide rail extending along the opening; a flexible sliding lid sliding in the guide rail; a housing portion provided at an end of the box member for storing the sliding lid; and drive means (open drive mechanism) provided at the end of the housing portion for opening the sliding lid. When the sliding lid is opened, a front end of the sliding lid is pulled in a traveling direction of the sliding lid, and the sliding lid can be opened smoothly.

[0008] According to the present invention, the sliding lid may be housed in the housing portion in a curved state, and the drive means may include an arm having a central axis and a free end. A torsion spring urges the central axis of the arm to rotate, and the free end engages the sliding lid. Accordingly, it is possible to reliably store the sliding lid in the housing portion with a simple configuration.

Brief Description of the Drawings

[0009] Fig. 1 is a perspective view showing an inside of an automobile where the present invention is applied; and

Fig. 2 is a side cross sectional view of a receptacle of the present invention taken along a longitudinal direction.

Detailed Description of Preferred Embodiments

[0010] Hereunder, embodiments of the present invention will be explained with reference to the accompanying drawings. Fig. 1 shows a center console box 1 of an automobile where a receptacle of the present invention such as a glove compartment is applied. The center console box 1 is disposed between a driver seat 2 and a front passenger seat 3 of the automobile, and a box member 4 with an opening is attached to the center console box 1. A sliding lid 5 capable of sliding freely usually closes the opening of the box member 4.

[0011] As shown in Fig. 2, guide rails 6 are provided on both sides of the opening of the box member 4, and the sliding lid 5 slides in the guide rails 6. A latching mechanism 7 is provided at a front end of the opening (left side in Fig. 2) for holding the sliding lid 5 in a closed state. A housing portion 8 is provided at a rear end of the opening (right side in Fig. 2), and is formed of an arc groove with a proper curvature for allowing the sliding lid 5 to be bent and housed when the sliding lid 5 is opened.

[0012] The sliding lid 5 has a shape of a shutter in which elongated thick-wall portions 9 are connected with thin-wall portions 10, and the sliding lid 5 is made of a flexible synthetic resin. Both ends of the thick-wall portions 10 slide in the guide rails 6 formed in the box member 4. When the sliding lid 5 is closed, the sliding lid 5 extends horizontally, and when the sliding lid 5 is opened, the sliding lid 5 is bent and smoothly slides in the housing portion 8.

[0013] The sliding lid 5 has a knob 11 at a front end thereof in a direction that the sliding lid 5 closes the opening, so that a fingertip is placed on the knob 11 to close the sliding lid 5. The knob 11 has a groove 13 in an inner surface thereof for engaging a locking claw 12 of the latching mechanism 7. The locking claw 12 is made of a hard synthetic resin, and freely slides vertically in a depression 14 provided at a front end of the box member 4. A helical compression spring 15 constantly urges the locking claw 12 upwardly.

[0014] A drive mechanism 21 is provided in the box member 4 at a side of the housing portion 8. The drive mechanism 21 is composed of an arm 16 supported on a sidewall of the box member 4 and capable of rotating within an angle of about 180 degrees; an intermediate gear 19 urged by a coil spring 18 to rotate and engaging a gear 17 formed at a base of the arm 16; and a rotational damper 20 engaging the intermediate gear 19 for controlling a rotational speed of the arm 16. A free end of the arm 16 of the drive mechanism 21 is inserted in a slit 22 provided at a rear end of the sliding lid 5, so that the rotational force of the arm 16 is transmitted to the sliding lid 5.

[0015] In the receptacle with the structure described above, when the sliding lid 5 is closed, the knob 11 is fully moved forward against the rotational force of the coil spring 18 applied to the arm 16, so that the locking claw 12 engages the groove 13 at the backside of the front end of the sliding lid 5 to maintain the closed state of the sliding lid 5 automatically.

[0016] When a button 23 integrated with the locking claw 12 is pushed to release the locking claw 12 from the groove 13, the arm 16 is rotated with the rotational force of the torsion coil spring 18 at a moderate speed damped by the rotational damper 20, so that the sliding lid 5 connected to an end of the arm is automatically opened. At this time, the driving force is applied to the front end of the sliding lid 5 in the sliding direction to open the sliding lid 5. Therefore, it is possible to open the sliding lid 5 smoothly and surely.

[0017] The present invention is explained with reference to the embodiment applied to the console box of the automobile. The present invention is not limited to the embodiment described above, and can be applied to a furniture or office equipment. Also, the present invention may be used not only as a box-like receptacle, but also as a cup holder with a holder for a beverage receptacle.

[0018] The drive mechanism includes the arm 16 urged by the coil spring 18 to rotate. Alternatively, the drive mechanism may include, for example, a wire wrapped around a bobbin to be rotatable and urged by a torsion spring or a well-known constant force spring in order to provide a sliding force to the sliding lid.

[0019] According to the present invention, the sliding lid is opened by the driving force applied to the front end of the sliding lid in the traveling direction. Therefore, it is possible to open the sliding lid smoothly. Also, it is possible to store the sliding lid in the housing portion reliably because of the simple structure.

[0020] While the invention has been explained with the specific embodiment of the invention, the explanation is illustrative and the invention is limited only by the appended claims.